

REMARKS/ARGUMENTS

Claims 26-29, 31-38, 41-43, 48, 54, and 57-60 have been amended, and claims 21-25, 30, 39, 40, 44-47, 50-53, 55, 56, and 61-65 have been canceled. In addition, claims 66-85 are newly added. Claims 26-29, 31-38, 41-43, 48, 54, 57-60, and 66-85 are now pending in the application. Applicants respectfully request reexamination and reconsideration of the application.

As requested, Applicants have amended the abstract to add reference to palladium and palladium alloys. As also requested, Applicants have also amended the specification to add the filing date of U.S. Patent Application No. 09/023,859.

Claims 28, 29, 31, 32, 34, and 51-55 were rejected under 35 USC 112, first paragraph, as allegedly failing to meet the written description requirement. Claims 51-53 and 55 were canceled for unrelated reasons, mooted the rejection of those claims. Applicants respectfully traverse the rejection with respect to the remaining claims.

The specification describes using rhodium and tungsten and their alloys several times. (Specification pg. 21, line 8; page 40, lines 6-8; and page 41, lines 1-10.) The specification thus supports the use of a palladium-rhodium alloy as recited in claim 28 and a palladium-tungsten alloy as recited in claim 29.

The specification also discloses that layer 824 in Figure 8D may comprise a palladium-cobalt alloy. (Specification pg. 41, lines 1-10.) As shown in Figure 8D, a top portion 834 may be removed, exposing the palladium-cobalt layer 824, which thus comprises a tip, as shown in Figure 8E. The specification thus supports the requirement in claim 31 that "said tip comprises palladium" and the requirement in claim 32 that "said tip comprises a palladium cobalt alloy." The specification thus also supports a similar requirement in claim 54.

Contrary to the assertion in the Office Action, layer 912 in Figure 9A does indeed form a majority of the body of the structure 920. Not only is layer 912 shown in Figures 9A and 9B as constituting a majority of structure 920, but the specification expressly describes layer 912 as "thick." (Specification, pg. 43, lines 9-30.) It should be noted that photoresist 910 and substrate 902 are not part of the contact structure 920, as shown in Figure 9C. Rather, the photoresist 910 is used only as a mold in which to form the structure 920, after which the photoresist 910 is removed. (Specification pg. 43, lines 31-32.) And the structure 920 is removed from substrate 902. (Figure 9C.) The specification thus supports the requirement in claim 34 that "a majority of said body comprise palladium."

The specification thus fully supports claims 28, 29, 31, 32, 34, and 54. The rejection of those claims under 35 USC 112, first paragraph should therefore be withdrawn.

The drawings were objected to as allegedly not showing features of claims 28, 29, 31, 32, 34, and 51-55. As mentioned above, claims 51-53 and 55 were canceled, mooting the objection arising from those claims. Applicants respectfully traverse the objections to the drawings arising from claims 28, 29, 31, 32, 34, and 54.

The specification illustrates a probe in several places (e.g., 402 of Figures 4B and 4C; 820 of Figure 8D; and 920 of Figures 9B and 9C). Moreover, as discussed above, the specification supports the use of a palladium-rhodium alloy and a palladium-tungsten alloy for probes. The drawings thus show the features of claims 28 and 29.

As discussed above, the tip 830 in Figures 8D and 8E is formed by removing portion 834 to expose layer 824, which may comprise a palladium-cobalt alloy. Therefore, the drawings show the features of claims 31, 32, and 54.

As also discussed above, the specification states that layer 912 in Figure 9A, which is shown as comprising a majority of structure 920, may comprise palladium. The drawings thus show the features of claim 34.

The drawings thus show the features of claims 28, 29, 31, 32, 34, and 54. The objection to the drawings should therefore be withdrawn.

Claims 49 and 59 were rejected under 35 USC § 102(b) as anticipated by US Patent No. 5,653,598 to Grabbe ("Grabbe") and US Patent No. 5,137,456 to Desai et al. ("Desai"). In addition, claims 50-54, 55, and 60 were rejected under 35 USC § 103(b) as obvious in view of Grabbe taken alone or in view of Desai, US Patent No. 5,180,482 to Abys et al. ("Abys"), and US Patent No. 3,648,355 to Shiba et al. ("Shiba"). Claims 49-53, 55, 56, and 61-65 were canceled for unrelated reasons, mooting the rejection of those claims. Applicants respectfully traverse these rejections with respect to the remaining claims.

New independent claim 66 requires interconnect structures that "comprise a palladium cobalt alloy." Neither Grabbe's contacts 10 nor Desai's contacts 10 are made of a palladium cobalt alloy. Nor is there any suggestion or motivation in Grabbe or Desai even hinting that modifying the contacts to include a palladium cobalt alloy would be desirable. Absent such a suggestion or motivation, modifying the contacts 10 of Grabbe or the contacts 10 of Desai is improper.

Claim 66 also requires that a base of each interconnect structure be attached to the electronic component. Neither Grabbe's contact 10 nor Desai's contact 10 is attached to an electronic component.

For each of the foregoing reasons, new independent claim 66 patentably distinguishes over Grabbe, Desai, Abys, and Shiba. Claims 54, 57-60, and 67-72 depend from claim 66 and are therefore also patentable. Claims 54, 57-60, and 67-72 also recite additional features that distinguish over Grabbe, Desai, Abys, and Shiba. For example, new claims 67-72 recite additional features describing the interconnect structures not disclosed or suggested by the prior art.

Claims 26-34, 37-48, 56, and 61-65 were rejected under 35 USC § 103(a) as obvious in view of US Patent No. 4,553,192 to Babuka et al. ("Babuka") in view of Abys, Grabbe, Shiba, Desai, and US Patent No. 3,940,786 to Scheingold ("Scheingold"). In addition, claims 26-34 and 36-65 were rejection as obvious in view of US Patent No. 5,810,609 to Faraci et al. ("Faraci") in view of Desai, Abys, Grabbe, Shida, and US Patent No. 5,632,631 to Fjelstad ("Fjelstad"). Claims 39, 40, 46, 47, 60, and 61 were also rejected in view of US Patent No. 4,239,312 to Myer et al. ("Myer"), Desai, and Shiba. Claims 30, 39, 40, and 44-47 were canceled for unrelated reasons, mooted the rejection of those claims. Applicants respectfully traverse these rejections with respect to the remaining claims.

Independent claim 26 is directed to a "test apparatus for testing an electronic device" and includes "a plurality of probes" each comprising "a contact tip disposed to make a temporary, pressure based connection with a terminal of said electronic device during testing of said electronic device." Independent claim 42 is also directed to a "test apparatus for testing an electronic device" and includes "a plurality of probes . . . comprising contact tips disposed to make temporary, pressure based connections with terminals of said electronic device to be tested."

None of the prior art of record teaches or suggests such a test apparatus. For example, Babuka discloses a package for an integrated circuit. (Babuka col. 2, lines 31-33.) The integrated circuit 17 is placed in the package not for purposes of testing the integrated circuit 17 but as a permanent operating package. As another example, Faraci likewise discloses not a test apparatus but a permanent operating package. Shiba does not even disclose any type of apparatus for making contact with an electronic device but discloses only a material from which

electrical contacts may be made. Abys, Grabbe, Desai, Scheingold, Fjelstad, and Myer similarly fail to disclose or suggest a test apparatus such as recited in claim 26 or claim 42. Independent claims 26 and 42 thus distinguishes over Babuka, Faraci, Shiba, Abys, Grabbe, Desai, Scheingold, Fjelstad, and Myer, whether taken singly or in combination.

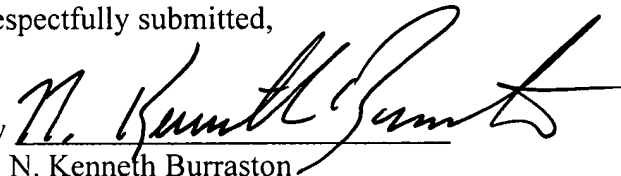
Claims 27-29, 31-38, 42, 43, 48, and 73-85 depend from one of claim 26 or claim 42 and are therefore also patentable over the prior art of record. Claims 27-29, 31-38, 42, 43, 48, and 73-85 also recite additional features that further distinguish over the prior art of record. For example, the prior art of record fails to teach or suggest probes (like those described in independent claims 26 and 42) that have contact tips made of palladium or a palladium-cobalt alloy, which provides superior wear and performance characteristics over prior art tips, as recited in claims 31 and 32. As another example, new claims 73-85 describe features of the probes not taught or suggested by the prior art of record.

In view of the foregoing, Applicants submit that all of the claims are allowable and the application is in condition for allowance. If the Examiner believes that a discussion with Applicants' attorney would be helpful, the Examiner is invited to contact the undersigned at (801) 323-5934.

Respectfully submitted,

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